

CLAIMS

1. A method of controlling routing of packets to a mobile node in a packet switching network including an infrastructure of packet switching nodes
5 interconnected by packet transport links, said packet switching nodes including a plurality of fixed core nodes and a plurality of access nodes to which routing paths, defined by next-hop forwarding provided by packet switching nodes located along said routing paths, may be directed in said infrastructure for a given network address, said next-hop forwarding being defined in response to routing defining
10 processes in which routing protocol control messages are transmitted between packet switching nodes and routing protocol data, specifying a characteristic of a route passing through an access node, is stored in said packet switching nodes, said method comprising:

altering said next-hop forwarding, for a first network address used by said
15 mobile node, in at least one of said packet switching nodes in response to mobility of said mobile host from a first access node to a second access node, to allow packets to be routed to said mobile host via said second access node, by a routing defining process involving the transmission of routing control messages to a limited number of said packet switching nodes, such that after said routing defining process
20 ends:

first routing protocol data for said first network address is held in a first set of packet switching nodes, said first routing protocol data specifying a characteristic of a first route passing through said first access node; and

second routing protocol data for said first network address is held in a
25 second set of packet switching nodes, different to said first set of packet switching

nodes, said second routing protocol data specifying a characteristic of a second route passing through said second access node.

2. A method according to claim 1, wherein said first route characteristic
5 does not apply to said second route.

Sub 22
3. A method according to claim 1 or 2, wherein said second route characteristic does not apply to said first route.

10 4. A method according to claim 1, 2 or 3, comprising generating said first routing protocol data prior to mobility of said mobile node from said first access node to said second access node.

5. A method according to any preceding claim, wherein said second
15 protocol data includes data indicating that said second protocol data results from mobility of said mobile node.

6. A method according to claim 5, wherein said mobility-indicating data indicates a sequence of mobility from said first access node to said second access
20 node.

Sub 23
7. A method according to any preceding claim, comprising limiting the storage of said second protocol data substantially to packet switching nodes located in the vicinity of a routing path between said second access node and said first
25 access node.

Sub 93

8. A method according to any preceding claim, comprising generating said second routing protocol data in response to a routing protocol control message injected from the second access node.

5

9. A method according to any preceding claim, wherein said routing protocol data relates to a number of hops along a route to said mobile node and passing through an access node.

10

10. A method according to any preceding claim, wherein said second set of packet switching nodes includes a subset of said first packet switching nodes, and said second routing protocol data is used in preference to said first routing protocol data to determine a next-hop routing decision in a packet switching node holding both said first routing protocol data and said second routing protocol data.

15

11. A method according to any preceding claim, comprising, when routing a packet destined for said first network address, routing said packet, from a packet switching node having a plurality of adjacent packet switching nodes including at least one of said first set of packet switching nodes and only one of said second set of packet switching nodes, to said one of said second set of packet switching nodes in preference to said at least one of said first set of packet switching nodes.

20

12. A method according to any preceding claim, comprising routing packets destined for said first network address via at least one of said first set of

Sub 93
packet switching nodes and at least one of said second set of packet switching nodes.

13. A method according to any preceding claim, wherein said first and
5 second routing protocol data relates to next-hop routing to packet switching nodes which are adjacent to the packet switching node in which the routing protocol data is held, said first routing protocol data relating to next-hop routing to a first plurality of packet switching nodes and said second data routing protocol data relating to next-hop routing to a second plurality of packet switching nodes, said first and said
10 second pluralities being mutually exclusive.

14. A method according to any previous claim, comprising simultaneously holding said first and second, and third routing protocol data, for said first network address, said third routing protocol data relating to a third access node via which
15 packets are currently to be transmitted to said mobile node using said first network address, in a third set, different to said first and second sets, of said packet switching nodes.

15. A method according to claim 13 and 14, wherein said third routing
20 protocol data relates to next-hop routing to packet switching nodes which are adjacent the packet switching node in which the routing protocol data is held, said third routing protocol data relating to next-hop routing to a third plurality of packet switching nodes, said first, said second and said third pluralities being mutually exclusive.

Sub 93

16. A method according to claim 14 or 15, wherein said third routing protocol data includes data which relates to said third access node and does not relate to said first and second access nodes.

5 17. A method according to claim 14, 15 or 16, wherein said first, second and third routing protocol data includes data indicating a sequence of mobility from said first access node to said second access node and from said second access node to said third access node.

10 18. A method according to any of claims 14 to 17, comprising, when routing a packet destined for said first network address, routing said packet, from a packet switching node having a plurality of adjacent packet switching nodes including at least one of said first set and/or said second set of packet switching nodes and only one of said third set of packet switching nodes, to said one of said
15 third set of packet switching nodes in preference to said at least one of said first set and/or said second set of packet switching nodes.

19. A method according to any of claims 14 to 18, comprising routing packets destined for said first network address via at least one of said first set of
20 packet switching nodes, at least one of said second set of packet switching nodes, and at least one of said third set of packet switching nodes.

20. A method according to any preceding claim, wherein said mobile node is connectable to an access node via a wireless link, said mobility involving handover
25 of the mobile node at the wireless link layer.

21. A method according to claim 20, wherein said mobile node is a mobile host.

5

22. A method according to any preceding claim, wherein said network address is an Internet Protocol (IP) address.

10

23. A method according to any preceding claim, wherein said routing protocol is a link reversal routing protocol.

15

24. A method according to any preceding claim, wherein said routing protocol data is held separately from next hop forwarding tables in said packet switching nodes.